

North Skye 12: Bornesketaig



The headland of Bornesketaig in the NW part of Trotternish is dominated by a thick Paleocene picrite sill with well-developed columnar joints, producing dramatic coastal features such as geos and rock pillars.

Aspects covered: a Paleocene columnar-jointed picrite sill – a Paleocene banded ultrabasic dyke (the ‘Mystery Dyke’) – (weathered) olivine dolerite (sill) intruded into Middle Jurassic Kilmaluag Formation strata – raised beach deposits of the Loch Chaluum Chille area.

Route: 1. [Bornesketaig](#) – [Uamh Oir](#) – [Ru Bornesketaig](#) – [coast WSW of Dùn Bornesketaig](#) (- return [Bornesketaig](#)); 2. [Peingown](#); 3. [Kilvaxter](#).

Distance: 3 kilometres (2 miles).

Time: 3-4 hours.

General comments: A short excursion plus two roadside localities (2 and 3). Part 1 is a cliff-top route that takes in general features of one of the thickest Paleocene picrite sills on Trotternish and a banded ultrabasic dyke. Part 2 is an excellent example of advanced weathering of a dolerite sill on the minor road at [Peingown](#). Part 3 is a roadside view of the raised beach deposits of the [Loch Chaluum Chille](#) area from [Kilvaxter](#).

[Bornesketaig](#) is in west Trotternish, off the main (A855) coastal road, 32km (20 miles) from [Portree](#) via [Uig](#), and 45km (28 miles) from [Portree](#) via [Staffin](#). At [Kilmuir](#), follow the minor road signposting [Camus More \(Mòr\)](#) for 1.2km (0.8 miles), past a prominent, [ruined church](#) on the SW side of the road, to a [road junction](#) and turn right (NW) and continue to the end of the public road, where limited [parking](#) is available. From here, go north through the gate to the [cliff top](#).

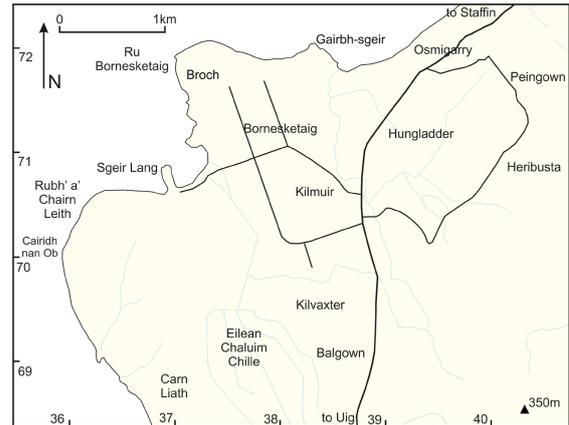


Figure North Skye 12.1: Location map for the Bornesketaig area.



Figure North Skye 12.2: Annotated Google Earth® images for the Bornesketaig area.

Locality 1 [\[NG 3774 7181\]](#):

The view to the NE is towards [Gairbh-sgeir](#) and illustrates the minimum thickness of this picrite sill, part of the Little Minch Sill Complex, as the top and base are not seen. Note the well-developed vertical cooling joints, locally with a near-perfect columnar joint pattern (better revealed elsewhere later in the excursion).

The islets to the NW, [Sgeir nan Ruideag](#), [An t-Iasgair](#) and [An Dubh Sgeir](#), are remnants of one of the Trotternish sills.

Follow the coastline, west towards [Uamh Oir](#) and [Ru Bornesketaig](#), and then SSE to where the cliff-lined coast gives way to a [gravel beach](#) (and where the broch of [Dùn](#)

[Borneskitaig](#) is located a short distance inland). *En route*, a variety of features within the sill can be observed:



Figure North Skye 12.3: A geo (or gio; Old Norse gjá), a narrow inlet, caused by marine erosion of a Paleocene dyke that has intruded the sill. Coastal section east of Uamh Oir.



Figure North Skye 12.4: Late-stage feldspar-rich sheet-like segregation within the sill. Coastal section east of Uamh Oir.



Figure North Skye 12.5: Rock pillars caused by collapse of columns along the coastal cliff formed by the sill. Coastal section east of Uamh Oir.



Figure North Skye 12.6: Isolated column connected to cliff face at top, with a fragment trapped halfway up cliff. Coastal section east of Uamh Oir.



Figure North Skye 12.7: Plan view of columnar joint pattern in sill. Ru Bornesketaig.



Figure North Skye 12.8: Section and plan view of columnar joints in sill. Ru Bornesketaig.



Figure North Skye 12.9: Column in picrite sill, Ru Bornesketaig. Cormorant for scale.

Locality 2 [NG 3717 7152]:

The rocks that crop out north and south of this beach form a wave-cut platform and are part of the picrite sill. On the north side of the pebble beach a N-S -trending, banded ultrabasic dyke crops out, intruded into the sill. This dyke has previously been referred to as the 'Mystery Dyke' for no obvious reason, other than, perhaps, its location.



Figure North Skye 12.10: Pebble beach, WSW of Dùn Bornesketaig. View is towards the south. Where the picrite sill is exposed north of the beach (this side), the banded ultrabasic dyke crops out.

This minor intrusion can be traced for c. 55m, to where it disappears into the back wall of the foreshore. The composition of the dyke is not uniform, with three recognisable facies: a marginal banded facies; an olivine-pyroxene-plagioclase facies; and a central zeolitic olivine dolerite facies. The following features should be noted:

- a.** The margins of the dyke are composed of alternating bands of fresh dendritic olivine and augite (locally with plagioclase);
- b.** Plagioclase is typically interstitial to the olivine and augite, and oriented perpendicular to these two minerals;
- c.** Zeolitised olivine dolerite forms the central facies of the dyke;
- d.** Banding is common close to the margins of the dyke;
- e.** Marginal chill facies of the dyke are locally developed.

The olivine dendrites (**a**, above) may be observed readily on fresh, as well as on weathered surfaces and appear as linear, parallel growths less than 1mm apart and over 10cm long (in places). The zeolite-rich centre of the dyke (**c**, above) is typically inweathered and can be traced from approximately 10–15m north of the pebble beach, to where the dyke disappears below the back wall of the beach. The banding (**d**, above) is particularly obvious on weathered surfaces c. 5m north of the pebble beach, where the dyke is distinctly non-linear.

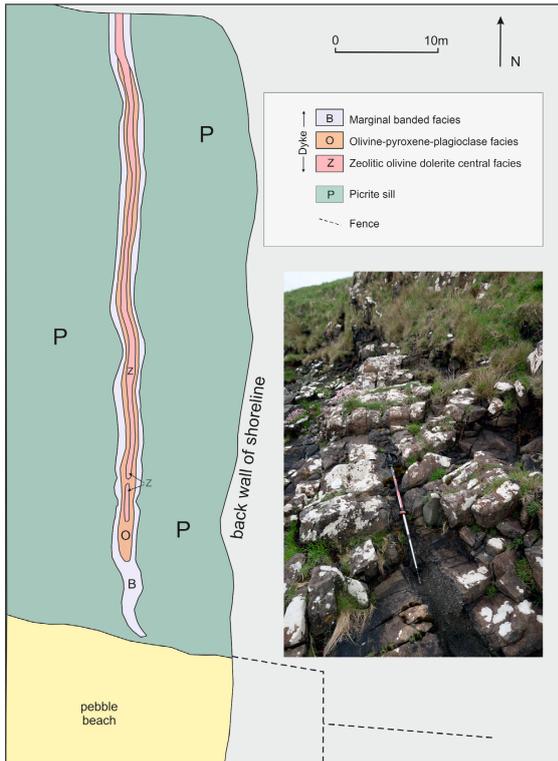


Figure North Skye 12.11: Schematic map and field photograph of the banded ultrabasic dyke of Bornesketaig, Trotternish. Pole c. 1m long.



Figure North Skye 12.12: Banded ultrabasic dyke, immediately north of the pebble beach, trending approximately N-S. Pole c. 1m long. The tip of the pole is on the central zeolitized facies of the dyke.



Figure North Skye 12.13: Central zeolitized facies of the ultrabasic dyke (above ruler). Ruler 30cm long.



Figure North Skye 12.14: Detail of the marginal banded facies of the ultrabasic dyke (below ruler). Ruler 30cm long.

Return to the parking area, either retracing the route along the coastline, or *via* [Dùn Bornesketaig](#) ([\[NG 3725 7160\]](#)), a ruined broch or hillfort, possibly dating back to the Iron Age, forming a c. 5m high mound, c. 45m x c. 20m, with some of the basic structure still visible.

The other two (short) localities, set out below, can be included if desired.

2. Peingown: Return to the main (A855) road and go north (left) for 1.5km (1 mile) towards Duntulm/Staffin to the [turn-off](#) (east/right) to [Peingown](#). Continue past the cemetery and the monument to Flora Macdonald to the small cluster of houses at Peingown [\[NG 4016 7167\]](#). Here, on the NE side of the road, Middle Jurassic strata of the Kilmaluag Formation of the Great Estuarine Group are in contact with thoroughly weathered dolerite of one of the Trotternish sills. These strata dip towards the NE and comprise (mildly thermally metamorphosed) interbedded estuarine mudstones and siltstones. The overlying (conformable) sill rock is thoroughly degraded dolerite, with classic onion-skin (also doleritic or spheroidal) weathering characteristics.

Typically, most of the rocks exposed on Skye are relatively fresh (i.e. not weathered), due to the removal of such material during the glaciation events of the Quaternary Period. The sill rock is weathered relative to the sedimentary rocks because of their respective

mineralogies. Those of the sill are in equilibrium with high (magmatic) temperatures, whereas the sedimentary rock comprises grains that accumulated at or near to the Earth's surface (in the Jurassic Period).



Figure North Skye 12.15: Inclined Middle Jurassic Kilmaluag Formation strata (bottom left) in contact with orange-weathered sill rock of one of the Trotternish sills at Peingown. Pole c. 1m long.



Figure North Skye 12.16: Onion-skin (or doleritic or spheroidal) weathering of sill rock at Peingown. Pole c. 1m long.



Figure North Skye 12.17: Thoroughly weathered and degraded sill rock at Peingown. Pole c. 1m long.

Return to the main (A855) road, turn left (south) and go south (left) for c. 2km (1.5 miles), past the Camus More turn-off, to [Kilvaxter](#). Here, on the left (east) side of the road (at [\[NG 3892 6949\]](#)) is parking for the [Kilvaxter souterrain](#) (French, *sous terrain*, under ground), an Iron Age (c. 300BC – AD 500) underground passage or gallery

with small chambers off the central tunnel. This souterrain is c. 17m long, with drystone walls and a lintel roof. Currently it is typically flooded.

3. Kilvaxter: From the west side of the road, the large low-lying area (meadow) is known as [Loch Chaluim Chille](#), although there is no longer a loch. Covering the area is peat and lacustrine deposits (the latter from the now-drained loch), below which are raised marine deposits of Devensian age (c. 25-30m OD) comprising sand and gravel with (sea-) worn shells.

Access is difficult and not advised.

In the middle of the 'loch' is [Eilean Chaluim Chille](#) (the island of St Columba), which is the site of a cashel (castle or fort) at [\[NG 3771 6887\]](#) and a medieval chapel at [\[NG 3768 6878\]](#).

The timing of the drainage of the loch is not known.



Figure North Skye 12.18: Loch Chaluim Chille, the site of a drained loch. Below a thin discontinuous cover of peat and lacustrine sediments are raised marine deposits of Devensian age (c. 25-30m OD) comprising sand and gravel with (sea-) worn shells. View is towards the west from the main (A855) road.

End of excursion.